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TRADE AND SEARCH: SOCIAL CAPITAL, SOGO SHOSHA, AND SPILLOVERS

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SUMMARY

It is well known that very few manufactured (as opposed to primary) commodities are traded on organized exchanges. It is also well understood that the heterogeneity of manufactures along the dimensions of both characteristics and quality interferes with the ability of their prices to signal relative scarcity. I claim that this uninformative nature of prices prevents "globally scanning" traders from substituting for organized exchanges in matching international buyers and sellers of differentiated products. Instead connections between sellers and buyers are made through a search process that because of its costliness does not proceed until the best match is achieved. This search is strongly conditioned by proximity and preexisting "ties" and results in trading networks rather than "markets".

In other work I explore the consequences of this network/search view of international trade in differentiated products at a macro level by examining world trade flows. The purpose of the present paper is to explore the consequences of this view at a micro level by examining trade behavior, institutions, and policies in a partial equilibrium context. I begin the paper by contrasting the network/search view with the standard monopolistic competition approach to trade in differentiated products. I then set up a simple partial equilibrium search model based on models used in labor economics. Next, I show how this search model yields economies of scope in search for buyers of differentiated products, which can help us understand the role of "social capital" in international trade and the viability of general trading companies such as Japan's *sogo shosha*. Finally, I note that if search is subject to free-riding (through unintended information spillover) there may be a rationale for ubiquitous export promotion policies such as subsidized trade missions.

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A network/search view of international trade in differentiated products is proposed. It is shown that this view can explain the importance of ethnic and extended family ties in trade, the success of diversified trading intermediaries such as Japan's *sogo shosha*, and the ubiquity of government export promotion policies such as subsidized trade missions.

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I. Introduction

It is well known that very few manufactured (as opposed to primary) commodities are traded on organized exchanges. It is also well understood that the heterogeneity of manufactures along the dimensions of both characteristics and quality interferes with the ability of their prices to signal relative scarcity. I claim that this uninformativeness of prices prevents "globally scanning" traders from substituting for organized exchanges in matching international buyers and sellers of differentiated products. Instead connections between sellers and buyers are made through a search process that because of its costliness does not proceed until the best match is achieved. This search is strongly conditioned by proximity and preexisting "ties" and results in trading networks rather than "markets".¹

This view helps us to understand a puzzling relationship between the volume of trade and distance between trading partners that appears once one extends the sample of countries in a gravity model beyond the OECD to a larger set of 63 countries examined by Frankel and co-authors in a series of papers on trading blocs (e.g., Frankel, Stein, and Wei 1993). Looking across commodities, one does *not* observe a more negative impact of distance between trading partners on the volume of trade as transportation costs increase as a percentage of value. The explanation of this puzzle offered by the network/search view of trade is that, due to their heterogeneity, low transport cost commodities are traded through networks while high transport cost commodities either have organized exchanges or reference prices that facilitate international commodity arbitrage.² This explanation is

¹Part of the cost of establishing a connection between a seller and a buyer may be mutual adaptation: the seller refines his product to better suit the preferences of the buyer and the buyer (especially if a firm rather than an ultimate consumer) adapts his specifications to the capabilities of the seller (see Egan and Mody 1992). Gereffi (1994) has especially emphasized the role of large first-world buyers in identifying and "shaping" third-world sellers. Within a given industry (e.g., footwear) one can imagine a continuum from sellers producing a completely specified product and then finding buyers to sellers finding buyers and then producing a product tailored to their specifications. The end result in terms of the impact of distance and "ties" on trade is the same.

²In passing we may note that the network view helps us to understand the high proportion of international trade that is intrafirm: the connections between sellers and buyers are "built-in". Brainard (1993) finds for her sample of 64 industries that for the United States

investigated empirically by Rauch (1995).

While Rauch (1995) explores the consequences of the network/search view at a macro level by examining world trade flows, the purpose of the present paper is to explore the consequences of this view at a micro level by examining trade behavior, institutions, and policies in a partial equilibrium context. The next section contrasts the network/search view with the standard monopolistic competition approach to trade in differentiated products. Section III sets up a simple partial equilibrium search model based on models used in labor economics. Sections IV-VI respectively show how this search model can help us to understand the role of "social capital" in international trade, the viability of general trading companies such as Japan's *sogo shosha*, and the rationale for ubiquitous export promotion policies such as subsidized trade missions. The concluding section suggests areas for further empirical and theoretical research.

II. The network/search view versus the monopolistic competition model of trade in differentiated products

In the international trade literature there are two different models of product differentiation. In the "ideal product" model, products vary because they combine certain underlying characteristics in different bundles and each user (consumer or producer) has some different best combination in mind. In the "love-of-variety" model, different product varieties enter symmetrically into a CES utility or production function so that the consumer or producer uses many different varieties simultaneously rather than choosing the one that is closest to her ideal. The ideal product model is the only one that I will use here (for an example of its direct application to international trade data see Feenstra 1988).

The standard approach to modeling international trade in differentiated products is to assume monopolistic competition equilibrium. An implicit assumption of the

the share of both imports and exports accounted for by intrafirm transfers is roughly equal to one-quarter.

monopolistic competition model is that any supplier, foreign or domestic, is automatically matched to the buyer(s) to whose ideal(s) its product is closest (see, e.g., Helpman 1981).³ In terms of Figure 1a, all sellers and buyers are connected to an abstract "international market", a black box that serves to costlessly match buyers to sellers. Perhaps a fictitious market is a serviceable assumption for trade within a country, where one can imagine that buyers are informed at nominal cost of all available varieties and their characteristics and sellers are well aware of how to reach the buyers that form their particular market niches. It is, I argue, *not* serviceable for international trade, where buying agents for consumer goods distributors and firms seeking inputs to production processes incur considerable costs in discovering the foreign varieties available and their characteristics, as well as the capabilities of the suppliers of these varieties, and sellers incur considerable costs in finding buying agents or intermediate goods demanders that are good matches for the variety they have to offer. As Swedish Trade Council export consultant Kent Goldman (quoted in Nothdurft 1992, p. 32) stated of his clients that are marginal or failed exporters, "Sometimes their product isn't right for the market, or the country they chose was not a good fit, or their approach or agents are not right." International trade in differentiated products, I argue, is more appropriately described by Figure 1b, where buyers and sellers become individually connected as the end product of a search process and may be ignorant of many buyers or sellers to which they are not connected.

While the situation depicted in Figure 1b might typically be described as an "unorganized market", I prefer to use the term "network". I eschew the term "market" to highlight the fact that trading behavior in Figure 1b is qualitatively different than trading behavior in Figure 1a and not just an approximation to it. In particular, I present

³This automatic matching is of course a consequence of the assumption of perfect information. One can interpret what I present here and in Rauch (1995) as evidence that the assumption of perfect information is much more damaging to our ability to understand trade in differentiated products than to our ability to understand trade in homogeneous products.

circumstantial evidence in Rauch (1995) that while (*ceteris paribus*) trading partners in organized markets are chosen to minimize transportation costs, trading partners in networks are chosen primarily to minimize search costs. I choose the term "network" to indicate an affinity with the branch of sociology called "network analysis"; a concrete example of this affinity will be given in section IV below. I argue below that the change from a market to a network/search perspective allows one to understand phenomena that cannot be understood within the monopolistic competition framework: the importance of "ties" (e.g., ethnic, extended family) in trade, the success of diversified trading intermediaries such as Japan's *sogo shosha*, and the ubiquity of government export promotion policies such as subsidized trade missions. Clearly other potential explanations exist for all of these phenomena, some of which undoubtedly account for part of what we observe, yet I hope to demonstrate that the network/search view can nevertheless provide new insight into all of them.

III. A partial equilibrium model of search and international trade in differentiated products

The purpose of this section is to create a partial equilibrium model of international trade in differentiated products that will serve to build intuition concerning the qualitative effects of social capital, *sogo shosha*, and spillovers discussed in sections IV, V, and VI, respectively. The model is analogous to models in labor economics where workers search for the jobs that best match their abilities.⁴ It admits of a graphical solution that is similar to a "reservation match".

Let us assume that a firm develops its variety of a differentiated product to suit a niche in its home market. (The fact that this assumption seems natural already indicates

⁴Similarly, Okun (1981, Chapter 4) argued that what he called "customer markets" (as opposed to "auction markets") had many similarities to labor markets. His concern was with "price stickiness" and macroeconomic fluctuations rather than international trade.

an incomplete information structure where information about buyers is mediated by distance.) The firm then tries to find foreign buyers for this variety, as opposed to developing a new variety for whatever foreign buyers it finds. The real world actually displays a mixture of both of these kinds of behavior. Nothdurft (1992, p. 63) notes that, "A recent European Commission study, for example, found that even among successful frequent exporters, only half of the firms surveyed tailored products to market specifications."

Within an industry, each firm produces its variety under conditions of locally constant unit cost. As is well known, globally constant unit cost would lead to customized production, eliminating the gains from trade that result from consumers or producers being able to purchase products closer to their ideals (i.e., the gains from trade not based on autarky cost differentials). Thus unit cost must be decreasing at sufficiently small levels of output. The purpose of the locally constant unit cost assumption is to prevent firms' average costs from changing when they expand into foreign markets, so that their profits from domestic sales are also unchanged.

The firm searches for the foreign buyer whose preferences among various product characteristics and quality best match the variety it has to offer. Its problem is complicated by the fact that it can search across many countries (even many ports of entry), each of which in general will differ regarding search costs per unit time and regarding how "close" and cost competitive the closest domestic substitutes are. I will simplify this problem by collapsing all the dimensions along which products can vary into one, and all the countries (ports of entry) into one. I thus assume there is a one-to-one correspondence between potential product varieties and points on the real line, that there is a known distribution of buyers $F(x)$ along the real line, and that search takes place in discrete time at a constant cost c per period. Foreign competitors are assumed to all charge the same price so that the firms that are most competitive with the searching firm are always the two that produce the varieties that are closest to its variety on the real line.

Figure 2 shows the portion of the real line where the searching firm's variety, denoted by x^* , and those of its closest foreign competitors, denoted by x_1 and x_2 , are located. The vertical dimension of the figure shows the potential gains from trade or surplus generated by a match between the searching firm and a buyer as a function of the latter's ideal product. The graph implicitly assumes that buyers do not differ along any dimension other than ideal product; e.g., they are all the same size. If all three supplier firms are charging the same price then obviously any potential buyer that is aware of all three will make its purchase from the firm that is producing the variety closest to its ideal product. For the time being let us assume not only that both foreign competitors are charging the same price, but that the searching firm's unit cost is the same as that price. In this case potential gains from trade clearly fall to zero at $x^* - (x^* - x_1)/2$ and at $x^* + (x_2 - x^*)/2$. The surplus also clearly declines when the buyer is getting closer to the nearest competitor and farther from the searching firm. Between x^* and $(x_1 + x_2)/2$ the buyer gets farther from both the searching firm and its nearest competitor as its ideal type moves to the right; I assume that surplus declines monotonically in this region so that there is a unique maximum at x^* .

The remaining assumptions follow the standard search model of labor economics (see, e.g., Sargent 1987, Chapter 2). In particular, buyers are passive⁵ (only sellers search) and there is no learning in the sense that previous searches offer no guidance as to "where" to search next. In any period the firm can accept its current match forever or reject it and search again for a new buyer with which it can match next period, so that acceptance of the match yields $\pi(x)/(1 - \delta)$, where δ is the firm's discount factor. I assume that the firm's per period profit from the match, $\pi(x)$, is an increasing function of the realizable surplus (see Figure 3). Let $v(x_t)$ be the expected value of $\sum_{t=0}^{\infty} \delta^t \pi(x)$ for a firm with current match x_t . Bellman's functional equation is

⁵Some consequences of relaxing this assumption are discussed briefly in the concluding section of this paper.

$$v(x_t) = \max\{0, \pi(x_t)/(1 - \delta), \delta \int_{-\infty}^{\infty} v(x) dF(x) - c\}.$$

The solution for $v(x_t)$ is given by the heavy line plotted in Figure 3. It is implicit in Figure 3 that c is not so large relative to $\delta \int v(x) dF(x)$ that no search (no trade) is optimal. We see that the firm accepts any match in the interval (\underline{x}, \bar{x}) . It should be noted in passing that the situation depicted in Figure 3, where search is profitable (in expectation), allows us to understand the commonplace expression of interest in "finding new markets" in the international business press, an interest that cannot be understood within either the perfectly competitive or monopolistically competitive models of international trade.

Let us now briefly consider the case where the given firm's unit cost differs from the price charged by its nearest foreign competitors. I consider the case where its unit cost is lower, since this is presumably more typical of an exporting firm; the case where its unit cost is higher can be treated symmetrically. Clearly there now exist potential gains from trade even when the firm is matched with buyers that are "closer" to the competition, and indeed the entire plot of the surplus in Figure 2 must be shifted upwards, raising the plot of $\pi(x_t)/(1 - \delta)$ in Figure 3 as well. But we might expect $\delta \int v(x) dF(x) - c$ to increase more because c remains constant, paradoxically narrowing the range of acceptable matches even though the range of matches that yield positive surplus has widened. The intuition is that the profit from a given match has increased relative to the cost of search, thereby making firms more willing to reject bad matches.

IV. Search and social capital

The work of Putnam (1993) has led to a surge of interest in the concept of "social capital" (now two decades old), which he describes (1994) as "features of social organizations, such as networks, norms, and trust, that facilitate coordination and cooperation for mutual benefit." Here I will use the concept to refer to what sociologists call "ties" that are used to exchange information. The effects of such ties have been

extensively studied in connection with job search, for which Montgomery (1991, p. 1408) summarizes the evidence from the literature with the statement that "approximately 50 percent of all workers currently employed found their jobs through friends and relatives."

While there is a fairly rich anecdotal and descriptive literature on the role of extended family and ethnic ties in international trade, to my knowledge Gould (1994) has done the only econometric study quantifying some of these effects. He finds that immigration to the United States increases U. S. bilateral trade with the immigrants' countries of origin, that this "immigrant-link effect" is stronger for U. S. exports than for U. S. imports, and that the effect on exports exhausts itself for a much smaller number of immigrants than does the effect on imports. Taken together these results indicate that the most important effect of immigration on trade is through the establishment of business contacts, with a secondary effect through increased U. S. preferences for goods produced in the country of origin. Gould also notes (p. 310) that when he disaggregates total trade into trade in consumer and producer goods, "The immigrant information variable does not appear to be important in the producer imports equation." His explanation of this finding is completely consistent with my argument in this paper: "Because producer goods tend to be the least differentiated products (for instance, scrap metal) across countries, trade flows in these products may not benefit much from country-specific information."

The anecdotal and descriptive literature on international trade has mainly emphasized how business contacts established through ethnic or extended family ties can resolve the problem of trust in international transactions (e.g., Curtin 1984). Yet clearly such ties can also be important as a source of information about potential buyers (or sellers). Kotkin (1992) states that "Chinese entrepreneurs remain, in essence, arbitrageurs, their widespread dispersion a critical means of identifying prime business opportunities" (p. 169) and "most of Hong Kong's Indian businesses--from the tiny two-man operation to the giant conglomerate--fit the classical mold, with extended families providing the linkages between various national markets" (p. 219). A good example of how the Hong Kong Indian

network works to identify buyers is the following story (p. 201):

Like millions of other Indian emigrants, [Gulu] Lalvani never went home. Shortly after arriving in Leeds, he met a pair of Jewish brothers named Rosenbaum who were selling costume jewelry and seemed to be making good money at it. Intrigued, Gulu and his brother Pratap took out a loan and bought some ersatz pearl necklaces through family contacts in Hong Kong, which they sold to the Rosenbaums at a handsome profit. Soon the Lalvanis were selling to the Jewish wholesalers down in London, taking in orders of up to 60,000 pounds at a single swoop.

In short, cross-border ties are important not only as a foundation for trust but also as a source of free information: in terms of Figure 3, one will accept a buyer about which one is informed for free rather than search if the buyer lies in the interval (\underline{x}, \bar{x}) . On the other hand, if all firms are matched automatically to their ideal buyers as in the monopolistic competition model, than free information supplied through ties is unimportant.

The network/search view of international trade in differentiated products also has implications for the importance of ties *within* a country. The role of such ties in promoting information sharing is increasingly appreciated. Discussing the Sinos Valley region of Brazil, the origin of over 80 percent of the country's footwear exports, Schmitz (1995, p. 21) reports that "non-economic ties between actors do seem to play a major role. Some are to do with ethnicity (being of German descent); others with geography (being local); or kinship." The "diffusion of information and ideas" between these tied entrepreneurs "occurs not only in business transactions, but also at social gatherings of friends, family, sports club, neighborhood or church" (p. 12). Investigators of industrial districts such as Schmitz have mainly been interested in sharing of technological information, while the importance of ties for marketing has been relatively overlooked. In particular, the benefits of exchange of information concerning foreign buyers emerge clearly from the model of the previous section. Consider two firms with equal unit costs whose entrepreneurs are "tied". One firm is identified by x^* in Figure 3 and the other firm lies anywhere outside the interval $[x_1, x_2]$. For example, firm 1 may specialize in women's shoes while firm 2 specializes in men's shoes. Under these circumstances the acceptance intervals of the two

firms will not overlap. If firm 1's entrepreneur then contacts a foreign buyer who turns out to be more interested in men's than women's shoes, he will be willing to pass this information on to firm 2's entrepreneur, and vice-versa.⁶ In effect, then, in every period each firm gets two independent draws from the distribution $F(x)$ rather than one, until one firm accepts a match. It follows that their "tie" raises $v(x_t)$ for both firms. Moreover, adding ties can only raise $v(x_t)$ still further. Indeed, it is possible that a country-industry's stock of social capital as I have defined it here could make the difference between its participation and non-participation in international trade: it could be that no firm will find a search for foreign buyers worthwhile on its own, but many firms will find this search worthwhile if they search mutually.

Matters become more complex when the firm to which firm x^* is tied lies *within* the interval $[x_1, x_2]$. This could be a common occurrence when a country is densely supplied in a particular part of characteristics space, i.e., when products with a particular constellation of characteristics are a regional/national specialty (e.g., "stout" beers from Ireland). In this case the acceptance intervals of the tied firms may overlap, creating a subinterval of matches for which they will not share information. Such a tie will typically not raise $v(x_t)$ as much as the type described in the preceding paragraph, the exception being when the more "distant" tied firm is located in a very favorable part of the distribution and is likely to find an acceptable match very quickly. This advantage of distant ties over "close" ties is another example of what Granovetter (1973) called "the strength of weak ties" in connection with job search: ties with those who are more "distant" from you (e.g., friends made during your previous employment rather than your current employment) and with

⁶Conceivably an entrepreneur who contacts a foreign buyer that turns out to want the product of the friend/relative to whom he is tied could purchase the latter's product and sell it to the foreign buyer at a profit. Aside from the fact that this violates the spirit of his tie, it may not work in practice. Buyers are typically interested in developing long-term supply relationships (see, e.g., Gereffi 1994 and Egan and Mody 1992) and would not be willing to deal with the second entrepreneur through the first unless the latter were to become the permanent representative of the former.

whom your relationship may be less intense ("weaker") because of less frequent contact can prove more valuable because there is less overlap between the information they possess and the information you possess.

V. Search and Sogo Shosha

A natural reaction to the analysis of the previous section is that even in the absence of social capital, traders (export firms) should emerge to organize "untied" producers in order to take advantage of the economies of scope that exist in the search process. However, this line of thinking neglects to take account of the fact that implicit in the notion of "tie" is familiarity with the characteristics and capabilities of the agent to which one is tied. Thus in the employment search context one can recommend one's friend for a job because one knows him well enough to know whether he will be a good match for the position.

A trading firm that wishes to capitalize on economies of scope in the search for foreign buyers must therefore make an initial investment in thorough knowledge of its clients. This puts it at a cost disadvantage relative to the client's own search, a disadvantage that can only be overcome (if at all) by having a large enough number of clients to generate economies of scope sufficient to offset this cost disadvantage. Understanding this benefit from size is, I believe, a first step towards understanding the success of Japan's general trading companies, known as *sogo shosha*.⁷ Yoshino and Lifson (1986, p. 7) describe *sogo shosha* as "large-scale diversified intermediaries" with "some characteristics of both vertically integrated firm and market". Of their operation in the

⁷Many other explanations for the success of the *sogo shosha* have been offered in the literature. For example, Sheard (1992) argues that the *sogo shosha* compensate for Japanese capital market imperfections by implicitly insuring against default on trade credit, a risk they can diversify through their "generality". Here I am attempting to identify a basis for success that can extend to any economy whether or not it shares Japan's characteristics, and thus help us understand the experience of other countries that are attempting to imitate the *sogo shosha*.

late nineteenth and early twentieth centuries, Yoshino and Lifson (p. 23) state:

Particularly important ... was the role the sogo shosha played in providing export opportunities for the myriad small Japanese firms in cottage industries, which, like their counterparts in developing countries today, faced many problems in trying to break into the world market. The sogo shosha fed them market information, helped them design products, extended credit, and, most important, developed foreign outlets for their products.

In 1975 the South Korean government stimulated the creation of general trading companies in imitation of the sogo shosha. One can get some idea of the size and importance of the Japanese and Korean general trading companies from figures compiled by Lee (1987). In 1985, Japan's top nine general trading companies handled 45 percent of Japan's total exports, while Korea's top seven general trading companies handled 47.9 percent of all Korean exports. Parenthetically, it is worth noting that Sung (1991) essentially argues that the dense network of traders in Hong Kong functions like a general trading company for mainland China. The share of Hong Kong imports from China for re-export in total Chinese exports had climbed to 41.3 percent by 1989 (Table 7.6, pp. 144-5). Sung also breaks down the Hong Kong re-export share of Chinese exports by one-digit SITC commodity groupings (Table 7.8, pp. 148-149), and his figures show a clear tendency for Hong Kong's share to increase with the degree of product differentiation. In 1987 (the last year for which this breakdown is available), when the Hong-Kong re-export share of total Chinese exports was only 21.9 percent, this share was 28.5 percent for manufactures (SITC 6-9) and 49.5 percent for machinery (SITC 7) compared to 10.7 percent for food and crude materials (SITC 0-4) and 18.2 percent for the intermediately differentiated category of Chemicals (SITC 5).

The argument presented in this section so far can explain only the size of the general trading companies, not their diversification. Indeed, since these economies of scope are also available to traders that specialize in only one industry,⁸ how can the general

⁸The role of specialized Taiwanese shoe trading companies in matching Taiwanese manufacturers to foreign buyers "in accordance with the specialties of individual factories"

trading companies compete? At best they can only equal the specialized traders in industry-specific knowledge of how best to handle customs and documentation, liability and other trade laws, shipping, etc., while the specialized traders will clearly have lower overhead. The answer, I believe, is that through diversification across industries the general trading companies can realize additional economies of scope not available to specialized traders. The following quotation from Jameson (1994) concerning the second-largest *sogo shosha* is revealing in this connection: "Mitsui, for example, formerly divided its operations into product-line divisions. 'But when the number of divisions reached 80, it became apparent we were losing sight of the overall picture,' company President Naohiko Kumagai told the newspaper *Asahi*. The divisions were reorganized into 20 headquarters 'to broaden horizontal contacts,' he said." Horizontal contacts across industries may be especially useful when handling buying as well as selling clients. For example, suppose a general trading company has as clients a firm in an intermediate goods industry that sells to producers in a certain capital goods industry and a firm in a final goods industry that purchases the output of this capital goods industry. The company can conduct one search for foreign buyers/sellers on behalf of both clients, until a match within the company's acceptance interval for one of the clients is found. Overlapping acceptance intervals are not a concern in this case since the clients are not in (potential) competition with each other; a capital goods firm that is a good match for both clients can buy from one and sell to the other.

The preceding paragraph begs the question, if general trading companies make such good economic sense, why are they not more prevalent? One possible explanation is that large, diversified trading firms typically cannot succeed because of the same problem that, according to Granovetter (1995, Chapter 10 and Afterword), makes large government employment services ineffective: the quality of information possessed about the client is

is well documented by Hsing (forthcoming, p. 57).

inadequate compared to the information possessed by the client herself or by her friends. In the 1980s the government of Turkey passed legislation encouraging the formation of foreign trade companies (FTCs) in imitation of the Japanese and Korean general trading companies, and Krueger and Aktan (1992, p. 165) report on the basis of their interviews with Turkish manufacturers that "frequently heard were complaints that FTC representatives abroad did not have enough knowledge of their products to be effective salesmen." Possibly general trading companies can only flourish within the East Asian style of doing business that emphasizes close long-term relationships. Jameson (1994) states, "Perhaps most fundamental to *shosha* is the intimacy and the history of business relationships built up over generations." Specialized trading firms, in contrast, can survive merely through providing a straightforward "middleman" service using industry-specific knowledge of the type described above, and do not depend on economies of scope in search to be cost-effective.

In this connection it is worth noting that the Korean general trading companies were formed by pre-existing business groups called *chaebol* (Lee, pp. 3-4), largely eliminating the need for costly investment in "ties". The *sogo shosha* are also affiliated with business groups: Imai (1989, p. 135) notes that Japanese business groups have "a general trading company at the core of the group engaged in information exchange between both buyers and sellers." However, if one investigates further it becomes clear that Mitsui Bussan and Mitsubishi Shoji, the oldest and largest *sogo shosha*, initiated the diversification of their *zaibatsu* (as the pre-World War II Japanese business groups were called) into production of differentiated manufactured goods. Sakamoto (1990, p. 54) states that, "The conglomerate form of *zaibatsu* can be said to have been born with Mitsui Bussan's commercial operations as its midwife," and goes on to describe (pp. 62-63) how, for example, Mitsui came to dominate Japan's exports of cotton yarn and cloth by forging

ties with independent spinning and weaving companies.⁹ Nevertheless, both Mitsui and Mitsubishi benefited from implicit government subsidies during the years when they were making their initial investments in ties: Yoshino and Lifson report that "The first major boost to [Mitsui] Bussan came in the form of the exclusive right to export the output of the richest government-owned coal mine" (p. 11) and "The business began in shipping, but like Mitsui, Mitsubishi, even more actively, moved into mining in 1873 under the patronage of the government" (p. 15). It may be significant that a third sogo shosha (Suzuki) that by the end of World War I achieved a size comparable to that of Mitsui and Mitsubishi subsequently collapsed; according to Yoshino and Lifson (p. 19) "Suzuki did not have access to the highly profitable mining ventures that Mitsui and Mitsubishi enjoyed through political patronage."

My analysis comparing the efficiency of search by general trading companies to that of firms' own search suggests the following tentative conclusion. Economies of scope realized by general trading companies dominate the cost of "maintaining" ties that firms conducting their own search do not have to bear (because they are automatically aware of changes in their own product lines), but not the cost of building ties from the ground up. The East Asian success with general trading companies then reflects their governments' willingness to provide start-up subsidies rather than unique cultural attributes.¹⁰

General trading companies may be hampered by an additional difficulty in realizing economies of scope in search. Suppose that, for any potential company client, there typically exists another firm in the same country-industry with an overlapping acceptance interval. Suppose further that the match that the general trading company identifies for its client actually occurs within the intersection of the two acceptance intervals. It might

⁹This occurred before World War I. During the interwar years, Mitsui Bussan "had small and medium-sized industries organize themselves and produce bicycles, woolen goods, knit goods, and shell buttons" (Sakamoto 1990, p. 75).

¹⁰The World Bank (1994, p. 112) states that, "Taiwanese LTCs [Large Trading Companies], however, never really took off in part because government incentives to LTCs were very modest".

be possible for the other firm to free-ride on this search and compete for the buyer's business, thereby devaluing the outcome of the search.¹¹ The strategy of free-riding might dominate the strategy of being a general trading company client. Indeed, it might dominate the strategy of engaging in any form of search for foreign buyers. This issue is taken up in full in the following section.

VI. Search and Spillovers, and Policy Responses

How much potential exists for firms to free-ride on the searches of other firms for foreign buyers? We do not know how typical it is for country-industries to be sufficiently densely supplied in a particular part of characteristics space to create overlapping acceptance intervals. We do know that international trade leaves a paper trail of customs documents and involves movement of goods and people in and out of international (and thus highly visible) seaports and airports. (Though we have pushed aside the issue of mutual adaptation between seller and buyer for this paper, it is worth noting in passing that much of this will involve translation of documents and conformance with regulations and standards that are easily transferred to a competing supplier from the same country.) When legal means are inadequate, free-riding may be accomplished by illegal means. McDermott (1994, p. 32) states, citing a study conducted for the American Society of Industrial Security, that "the most common target for corporate spies is customer lists". We are also informed by Egan and Mody (1992, pp. 326-7) that, at least when more developed country buyers are dealing with less developed country sellers, buyers prefer renewable short-term (annual) contracts, rather than long-term contracts that would prevent free-riding. In any case, my aim in this section is to show that it is much easier to understand the ubiquity of certain government policies if we think of them as responses to

¹¹In the previous section it was implicitly assumed that if this situation arose, either (1) the firm whose search was successful is able to prevent free-riding through secrecy, a long-term exclusive contract, or other means, or (2) codes of behavior embedded in the notion of a "tie" prevent free-riding.

the potential for firms to free-ride on the successful searches of other firms for foreign buyers.

Let us consider the case where firms in a given country-industry find it worthwhile to engage in search for foreign buyers in the absence of potential free-riding but do not find search worthwhile in the presence of potential free-riding.¹² One possible policy response to this problem is to subsidize search. Indeed, most governments do this by, among other things, sponsoring trade missions. Of twelve countries studied by Seringhaus and Rosson (1990, chapter 2), only West Germany and Austria did not provide formal government support for trade missions, leaving their organization and financing to chambers of commerce and industry associations instead. In recent years the Japanese government had also withdrawn from export promotion, leaving this to the Federation of Japanese Industries, which includes the *sogo shosha*. (The other nine countries were Australia, Belgium, Canada, France, Italy, the Netherlands, Sweden, the United Kingdom, and the United States.)

Hibbert (1985, p. 141) lists a number of areas in which trade missions can play a positive role. At the top of his list are "facilitating market research" and "participants collectively devoting more effort to market investigation".¹³ Consider also this detailed description of the programs sponsored by the state-owned French Insurance Company for Foreign Trade (COFACE), given by Nothdurft (1992, pp. 46-47):

To encourage SMEs [small-to-medium-size enterprises] to develop overseas markets, COFACE will reimburse 50 percent (more in difficult markets) of the costs of two individual missions by up to three company executives for as long as two weeks. More significantly, for an annual premium equal to 1.5 percent

¹²Even if these firms find search worthwhile in the presence of free-riding, they may delay search if there is a first-mover disadvantage. The first mover has the obvious disadvantage of incurring search costs, but also has the advantage of searching within its own acceptance interval rather than (effectively) searching within the acceptance interval of another firm. For a discussion of "excess inertia" when there is first-mover disadvantage see Farrell and Saloner (1986).

¹³At the bottom of Hibbert's list is "providing beneficial intra-group exchanges and contacts for experienced exporters". This suggests that another purpose of trade missions is to substitute for social capital, or even to build social capital.

of an SME's market exploration budget, COFACE will guarantee from 50 to 60 percent of the cost of market exploration activities, up to approximately \$160,000, if subsequent export income from the target market fails to cover R&D costs. Repayment is graduated over six years to keep pace with anticipated business growth. A similar program for large firms guarantees up to 75 percent with repayment over ten years. According to one COFACE official, some 6,000 firms have participated in this guarantee program, and two-thirds have been either wholly or partly successful.

Thus it seems clear that government support of trade missions is a response to what is considered inadequate search by domestic firms, but whether it is perceived as inadequate because of potential free-riding or only in light of some mercantilist goal is not clear.

A newer means of subsidizing search is the creation of government entities intended to function much like the general trading companies discussed in the previous section. Consider the following example from the Emilia-Romagna region of Northern Italy, described by Nothdurft (1992, p. 36):

The Service Center for the Export Development of Emilia-Romagna Firms, or SVEX, was created in 1989 jointly by ERVET, the regional chamber of commerce, and the production associations for small, medium, large, and artisan firms.... Operating on the assumption that Italian firms need no help in penetrating European markets, SVEX researches untapped but potentially important difficult markets such as the former Soviet Union, India, and Japan. It conducts a detailed market analysis; finds an appropriate political, cultural, or trade event to promote the region's firms; organizes a group of firms interested in and capable of trading with the target country; invites officials from that country to visit the firms in Emilia-Romagna; and eventually establishes a permanent presence in that market, typically an overseas national under contract to SVEX. In addition to representing individual firms and groups of firms, SVEX is, in effect, a service center for service centers in the region's other sectors.

Even if trade missions and other market exploration programs are successful in countering the disincentives to search created by potential free-riding, because they do not *prevent* free-riding they may not be cost-effective from the point of view of the sponsoring government. Free-riding weakens the bargaining power of the domestic firms vis-a-vis the foreign buyer and may therefore reduce the total domestic share of the surplus below what one firm would have obtained in the absence of free-riding. In this connection it is worth noting a comment by Hibbert (1990, p. 226) that missions that represent only one industry

rather than a range of industries "are not always popular among businessmen who find themselves competing against each other overseas (calling on the same buyers, promoting similar products, etc.)".

One way to prevent free-riding is for governments to allow firms that identify and supply foreign buyers to apply for a monopoly export license to fill orders for its type of product(s) coming from that buyer. Such a policy, however, would shut out desirable competition in the case of bad performance by the holders of the licenses. For this reason such a licensing system may act as a competitive disadvantage for the country's sellers vis-a-vis sellers in other country-industries. Nevertheless, countries that license exports with other policy objectives in mind may attempt to discourage free-riding more informally through their administrative oversight of the licensing process. Clearly more research is required here, both to identify the optimal policy response to the problem of potential free-riding on the search of others and to discover the extent to which current government policies may be understood as responses to this problem.

VII. Conclusions

In this paper I have explored some of the implications of a network/search view of trade in differentiated products for microeconomic aspects of trading behavior. I have shown that this view can explain the importance of ethnic and extended family ties in trade, the success of diversified trading intermediaries such as Japan's sogo shosha, and the ubiquity of government export promotion policies such as subsidized trade missions. A whole set of government trade policies aimed at subsidizing search, a set heretofore ignored by trade theorists, has been opened up for formal welfare analysis. At the same time, it must be recognized that alternative explanations exist for all of these phenomena, some of which undoubtedly account for at least part of what we observe, and that more research is needed to evaluate the relative importance of the explanations I have given here. It is doubtful that studies using data on bilateral trade flows such as Gould (1994) can be

anything more than suggestive. What will be needed is comparative case studies done with the ideas presented here in mind.

Much more could be learned about trade and search by dropping the limitations of the partial equilibrium approach I have pursued in this paper. For example, Gereffi (1994) has argued that when sellers are less developed country manufacturers the most important search activity is conducted by (more developed country) buyers, yet I have assumed throughout that foreign buyers are passive in the sense that they do not engage in search activity of their own. This prevented me from analyzing phenomena such as trade fairs, which appear to attract foreign buyers in part by reducing their search costs.¹⁴ To properly incorporate actively searching foreign buyers as well as domestic sellers, however, one should move from a search model to a matching model, thereby greatly increasing the complexity of the analysis. Ultimately the goal of the network/search view of trade in differentiated products should be a general equilibrium model that allows for entry/exit of firms and includes final consumers, as does the monopolistic competition model. Here I can only speculate about what contributions to our understanding of international trade might emerge from such a model. Among them, I hope, will be new concepts of "economic distance" between countries and "natural protection" for domestic industries based on search costs rather than transportation costs.

¹⁴The advantages of seller clustering to buyers searching for a differentiated product has already been recognized by conventional search theory (where "ties" between searchers play no role); see, e.g., Stuart (1979).

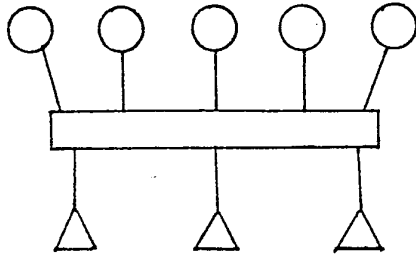
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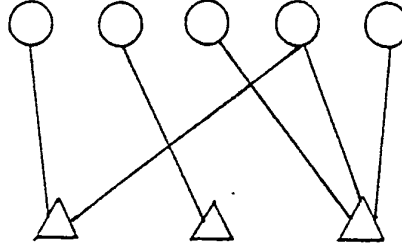
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organized market



network (unorganized market)



Key: ○ = demander △ = supplier — = connection

Figure 1a

Figure 1b

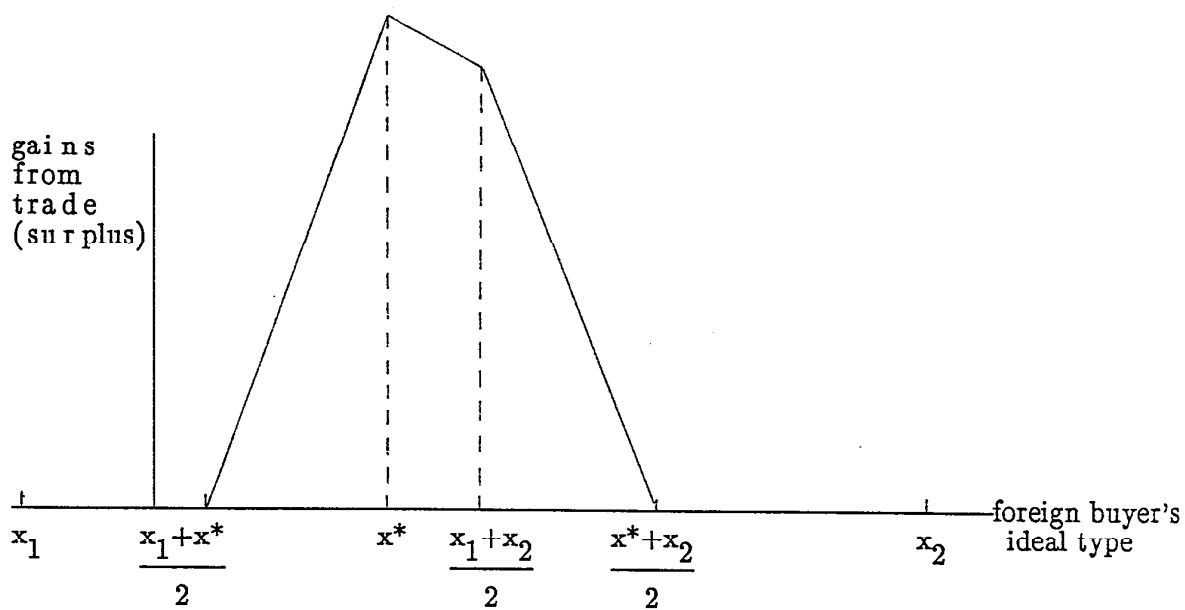


Figure 2

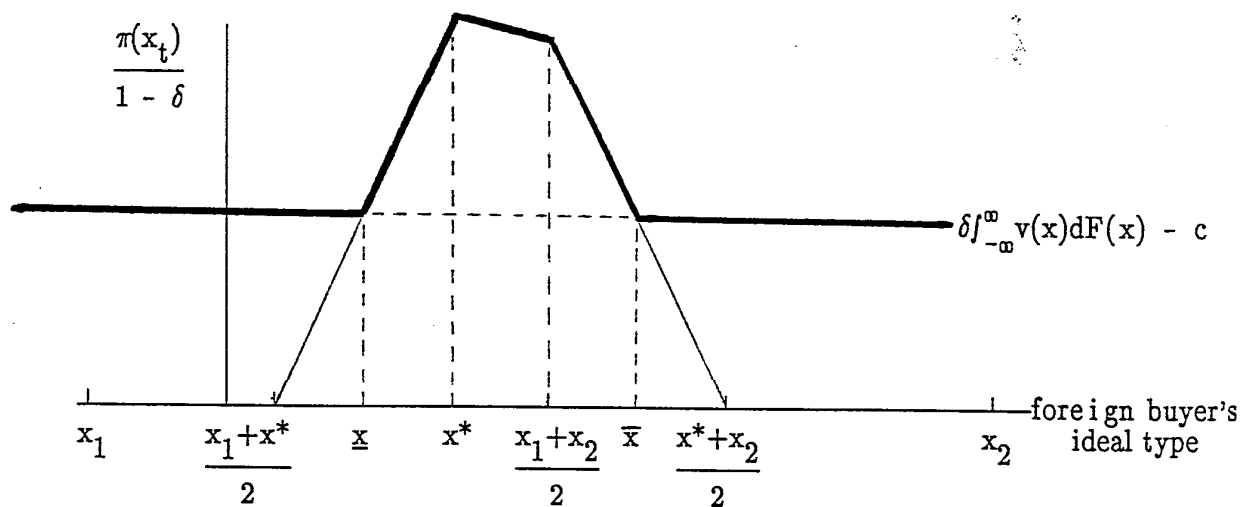


Figure 3